

IP/Unix Preparation Course

May 29, 2011

Exercises: Networking

Practice: ping, netstat, tcpdump, traceroute, arp, route

1. Remember to check your network configuration!

Check it with:

```
$ ifconfig eth0 inet
```

Do you see an IP address on your network card?

It should look like this:

```
eth0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu  
1500  
inet 10.10.0.nnn netmask 0xffffffff broadcast 10.10.0.255
```

... where 'nnn' is your IP address.

2. NETSTAT

Look at your routing table:

```
$ netstat -rn
```

What do you notice? Is the default gateway configured? How do you know? Review the presentation if you are not sure.

3. PING

Let's ping the default gateway:

```
$ ping 10.10.0.254
```

(Stop it with CTRL+C)

Let's ping something outside, on the Internet. For example, afnog.org

```
$ ping afnog.org
```

Do you get an answer ?

If not, check:

- That you have a gateway
- That you have an `/etc/resolv.conf` that contains a nameserver.

What do you notice about the response time (time=.. ms)? Does it change between pings?

4. TRACEROUTE

Traceroute to afnog.org

```
$ traceroute afnog.org
```

Try again, this time with the `-n` option:

```
$ traceroute -n afnog.org
```

Observe the difference with and without the `'-n'` option. Do you know what it is?

5. TCPDUMP

Run `tcpdump` on your system:

```
$ sudo tcpdump -n -i eth0 icmp
```

(Note the use of the `icmp` keyword to limit viewing only ICMP traffic)

Ask the instructor(s) or your neighbor to ping your machine, and look at your screen.

6. MTR

The `mtr` package is a nice tool that combines the results and power of `ping` and `traceroute` in a single command. First we need to install this package in order to use it. As a normal user do:

```
$ sudo portmaster -P net/mtr-nox11
```

And, now, we'll use `mtr`:

```
$ mtr nsrc.org
```

and let's do:

```
$ mtr afnog.org
```

Can you see where the route to both hosts takes a long hop? Look for things like packet loss and StDev to see the overall health of the route to the host.